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- 1. A multilayer composite attachment film for use in assembling semiconductor devices, comprising:
- a metal foil having first and second surfaces; and an adhesive layer attached on each of said surfaces;

whereby said multilayer composite has an average modulus greater than the modulus of a polymerized encapsulation material.

- 2. The attachment film according to Claim 1 wherein said metal foil of said composite is a copper foil in the thickness range from about 30 to 150 μ m and having a modulus of approximately 200 GPa.
- 3. The attachment film according to Claim 1 wherein said metal foil of said composite may be any metal, including nickel, zinc, and aluminum, with a modulus so that the composite modulus is greater than the modulus of the selected molding compound.
- 4. The attachment film according to Claim 1 wherein said adhesive layers of said composite are epoxy resin and acrylic resin blends in the thickness range from about 10 to 50 µm.
- 5. The attachment film according to Claim 4 wherein the modulus of said adhesive layers are selected so that said multilayer composite including said metal foil has an average modulus greater than the modulus of a polymerized encapsulation material.
 - 6. A semiconductor device comprising:
- a semiconductor chip having an active and a passive surface, said passive surface adhesively attached to a substrate film by means of a

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multilayer composite;

said composite comprising a metal foil having first and second surfaces and an adhesive layer attached on each of said surfaces.

- The device according to Claim 6 wherein said passive 5 7. chip surface is attached to the adhesive on said first foil surface, and said substrate film attached to the adhesive on said second foil surface.
- The device according to Claim 7 wherein said adhesive 8. 10 layer between said chip and said first surface of said metal foil is between 10 and 30 um thick, nonultraviolet curable, and having a modulus of approximately 1 GPa.
 - The device according to Claim 7 wherein said adhesive layer between said second surface of said metal foil and said support film is between 20 and 50 µm thick, ultraviolet curable, and having а modulus approximately 1 GPa.
- The device according to Claim 6 wherein said substrate 10. film is an insulator including polyimide in thickness range of about 100 µm, integral with least one layer of electrically conductive routing lines, a first plurality of terminals facing in the direction towards the chip, and a second plurality of 25 terminals facing in the direction away from the chip.
 - The device according to Claim 10 11. wherein terminals are bondable or solderable.
- 12. The device according to Claim 10 further comprising bonding wires attached to said first terminals and connecting said terminals to said active surface of 30 said chip.

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- 13. The device according to Claim 10 further comprising solder balls attached to said second terminals, said solder balls suitable for connection to an outside part.
- 5 14. The device according to Claim 6 further comprising a protective encapsulation, said encapsulation enclosing said active chip surface, said bonding wires, and portions of said first surface of said composite.
- 15. The device according to Claim 14 wherein said encapsulation is provided by molding compound, having a modulus of approximately 20 to 26 GPa.
 - 16. The device according to Claim 6 wherein said multilayer composite has an average modulus larger than the modulus of the encapsulating molding compound.
 - 17. The device according to Claim 6 wherein said semiconductor chip is made from a material selected from a group consisting of silicon, silicon germanium, gallium arsenide, and any other semiconductor material used in integrated circuit fabrication.
 - 18. A method for fabricating a multilayer composite attachment film for use in assembling semiconductor devices, comprising the steps of:

providing a metal foil having first and second
surfaces; and

attaching an adhesive layer on each of said surfaces;

thereby creating a multilayer composite having an average modulus greater than the modulus of a polymerized encapsulation material.

19. A method for assembling a semiconductor device, comprising the steps of:

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providing a multilayer composite attachment film
comprising a metal foil having first and second
surfaces, a non-ultraviolet-curable adhesive
layer attached on said first surface, and an
ultraviolet-curable adhesive layer attached on
said second surface;
providing a semiconductor wafer having an active
and a passive surface;
placing said composite film with said ultraviolet-
curable adhesive layer onto a transparent
support film;

attaching said passive surface of said semiconductor wafer onto said non-ultravioletcurable adhesive layer of said composite film; and

shining ultraviolet light through said transparent support film on said ultraviolet-curable adhesive film in order to reduce the adhesive strength between said composite film and said support film.

The method according to Claim 19 further comprising 20. the steps of:

> dicing said wafer and said attached composite film into singulated chips;

providing an insulating substrate film, integral with electrically conductive routing lines, a first plurality of terminals on one surface of said substrate, and a second plurality of terminals on the opposite surface of said substrate;

picking one singulated chip at a time from said support film and attaching said ultraviolet-

		cured surface of each singulated chip to said
		substrate film;
		curing said adhesives, creating hardened layers;
		wire bonding said active surface of each chip to
5		said first plurality of terminals on said
		substrate, respectively;
		encapsulating each chip in molding compound so that
		said active chip surface, said bonding wires,
		and portions of said substrate film are
10		protected;
		attaching solder balls to said second plurality of
		terminals on said substrate film; and
		singulating said substrate film to create
		individual devices.
15	21.	The method according to Claim 20 wherein said step of
		singulating said substrate creates devices with
		outlines of chip-scale packages.